

33 of 38

Hayes Brake / Delphi Action Item List								
#	Date Opened	Category	O/C	Original Due Date	Revised Due Date	Date Closed	Priority	
								Action Item
								Update
								Responsible
289	30-Jun-04	Motorcycle	C					ADAMS Training
								6/30/04 - Agreement specifically calls out ADAMS training. Hayes is working to get updated software prior to taking advantage of Rich K's group.
290	30-Jun-04	Motorcycle	C			3-Feb-05		Training for a new reliability engineering position at Hayes
								2/3/05 - Closed, covered under manufacturing item #56. 10/21/04 - Can Delphi send a reliability engineer to visit HB and make suggestions for improvement. 10/7/04 - Russ to work on making someone available for training in Dayton. 9/15/04 - Looking at late October date (week of 10/18 or 10/25) - OK with Hayes?
291	30-Jun-04	Motorcycle	C			3-Feb-05		Develop a component test strategy to improve confidence in product reliability
								2/3/05 - Closed, covered under manufacturing item #56. 10/21/04 - Need a HB contact name for this topic. 10/7/04 - Provide examples of validation plans to compare/contrast. Develop a future test plan. 6/30/04 - Test design - Can we help them develop a component test strategy to improve confidence in product reliability. They like our MEQST concept
292	26-Jul-04	Motorcycle	C			18-Nov-04		Evaluate noise propensity on new Hayes rotor designs
								10/25/04 - Sent Shih-Wei's analysis results to Korey. 10/21/04 - Shih-Wei expects to have results by 10/22. 9/16/04 - Requested timing information from Shih-Wei. 9/9/04 - Greg returning to school. Shih-Wei to take over
293	5-Aug-04	Manufacturing	C					Performance Indicators
								10/7/04 - Forwarded to Russ. 9/15/04 - Asked Julie Hatton for the templates. 8/5/04 - Can Delphi share examples of the key performance indicators that are posted on the walls in various tech centers. Also examples of engineering measurements.
294	5-Aug-04	Manufacturing	C			7-Oct-04		Cartridge master cylinder optimization
								10/7/04 - HB is working out issues through the ME group. Will re-open if required. 8/5/04 - Hayes MBMR project is still having issues getting tooling that works (drawing errors to the tool source). - Russ to set up call to discuss progress with ME's and whether follow-up is required.
295	5-Aug-04	Motorcycle	C			18-Nov-04		Phenolic compatibility discussion (fluid, thermal, vibration, etc)
								11/11/04 - Sent conference call notes and caliper dimensions. 10/27/04 - Held teleconference with HT and Mike Lee. 10/21/04 - plan on Wed PM (10/27) 10/20/04 - Who are the Hayes contacts for this topic? 10/7/04 - Need to suggest a time to get things kicked
296	10-Sep-04	Opportunities	C			18-Nov-04		Rear wheel unlocker
								9/14/04 - Sent information slides on RPC. 9/10/04 - Polaris interested in RWAL-type system for ATV
297	26-Sep-04	ABS	C					Develop plan to test DOT5 in vehicle
								5/19/04 - DOT5 activity on hold. 3/25/04 - FL Done with Level 3 except hi-co. May want to try while Bryan is in desert. 2/11/04 - Mid march tryout of DOT5 is more realistic based on vehicle test plan. 12/18/03 - February - try out DOT5 on vehicle. 10/21/03 - DOT5 will be evaluated on vehicle (FL) as a part of Fulmer's development plan

Hayes Brake / Delphi Action Item List							
#	Date Opened	Category	O/C	Original Due Date	Revised Due Date	Date Closed	Priority
298	27-Sep-04	Opportunities	C		3-Mar-05	8-Mar-05	L
299	4-Oct-04	Opportunities	C		17-Mar-05	18-Apr-05	H
300	7-Oct-04	Technical	C	31-Dec-04	29-Apr-05	18-Apr-05	L
301	7-Oct-04	ABS	C		18-Feb-05	18-Feb-05	M
302	7-Oct-04	ABS	C		18-Feb-05	18-Feb-05	M
303	7-Oct-04	ABS	C			3-Feb-05	
304	7-Oct-04	ABS	C			6-Jan-05	
305	13-Oct-04	Manufacturing	C			21-Oct-04	
306	13-Oct-04	Opportunities	C			18-Nov-04	

Hayes Brake / Delphi Action Item List

Action Item

Update

Responsible

Share caliper details for heavy duty off-road application

Hayes Trailer Sponsorship

Schedule Brake Training for both Hayes and Harley-Davidson.

Demonstrate ABS on an ATV

Demonstrate Snowmobile ABS

ABS Improvements

ATV Foundation Brake Upgrades

Delphi opinion of Wineman Technologies

Can Delphi share some hub information for potential utility application.

3/8 - Pfeifenberger supplied ballpark number yesterday.
3/2/05 - Message to Pfeifenberger about price.
12/8/04 - Elliott to send 3 calipers (2x51, 2x57, 2x60) Con X in March
3-4 calipers that work for delphi - ballpark cost - (500-1000 per year)

10/6/04 - Send layout drawing of the caliper
3/17/05 - Steve Pfeifenberger will be shipping the electronics and decals to HB.
3/2/05 - Pfeifenberger has the decals. Working to collect the electronics.
2/3/05 - Pfeifenberger is ok with XM Radio trying to find decals and speakers for the trailer.
1/5/05 - Pfeifenberger is pursuing.

10/21/04 - Message system 2 YMA
4/7 - Walker and Elliott presented at HB.
3/14 - Booked travel for Apr 6/7 - Elliott to provide schedule and get course materials made.
3/8 - Asked James if he's still available
3/3 - April 6/7 - 30 people.
3/2/005 - Week of Apr4 is good for James.
1/7/05 - James Walker willing to assist. Need to set a date with HB

2/18/05 - ATV delivered to HB
1/20/05 - Ride at MTS went well with ABS and RPC. Need to try to disable EBS for a better demo.
1/6/04 - ATV will be in Marquette beginning on 1/10 for RPC tuning.
12/8/04 - atv - need to get dates planned with arcticcat and polaris. Need delivery details for the vehicle

11/18/04 - Does HB have a summary of the rides?
2/18/05 - Snowmobile delivered to HB.
2/3/05 - Expecting all parts at dealer tomorrow. Sonnenberg to rebuild and try out over weekend. Has new software to evaluate.
1/25/05 - Collected sensor data - need new track!!!
1/20/05 - Ride went ok. igh speed ABS isolation issue (speed sensor related)

1/6/05 - Vehicle is built and debugged. Going to
2/3/04 - Closed - covered under item #126
1/6/05 - The turf mode tuning isn't the only issue with ABS performance. The engine braking system on the ATP is also causing a lot of wheel slip that can result in stability issues.
11/18/04 - Vehicle returned from Hayes with electrical issues. ABS is functional again. Expect to get data next week.

10/21/04 - Decision by 11/1
10/7/04 - HB foundation brakes on the ATP ?

10/21/04 - Forwarded message from Brian Stainforth and Gene Rousseau (Saginaw Steering Systems.)

10/25/04 - Sent spline information to Troy
10/21/04 - Spoke to Steve Baker - reminder.
10/13/04 - Sent e-mail to Sandusky bearing team.
10/13/04 - Can Delphi provide typical hub information to HB

J. Elliott

S. Pfeifenberger

R. Dudan

M. Sonnenberg

M. Sonnenberg

Elliott / Check

P. Nelson

Elliott

Elliott

Hayes Brake / Delphi Action Item List								
#	Date Opened	Category	O/C	Original Due Date	Revised Due Date	Date Closed	Priority	Action Item
307	9-Nov-04	Supply Chain	O	11-Mar-05			H	Cost modeling of the Cyclone master cylinder
								3/17 - 13.80 with \$142k in Taiwan - 14.40 delivered to HB (guaranteed). DPH was 13.75 with \$1.5M tools. 13.93 out of HB as incremental volume with \$700k tools. 3/3 - HB expecting another quote back on 3/8. HB will contact us next week with more information. 3/3 - Steve supplied material price, but it included rotation machines <u>P. Nelson working on piece</u>
308	9-Nov-04	Supply Chain	C	17-Mar-05	8-Mar-05		L	Can Delphi share information on labor rates
								3/8 - Forwarded response from Steve Davey. 3/2/05 - Again asked Pam for details. 2/3/05 - Asked Attenweiler for details on drum brakes. 1/10/05 - Forwarded cost information from Jimmie. 12/8/04 - Are any components coming back into the US from China? - Truck drums? 12/2/04 - Follow up message to Jimmie
309	9-Nov-04	Supply Chain	O	18-Feb-05			H	Can Delphi share names of domestic brake component suppliers
								2/23/05 - E-mail reminder to D. Lewis 2/15/05 - Topic discussed during exec review. 2/3/05 - Reminder to D. Lewis 11/9/04 - Delphi to recommend 1-2 suppliers for Hayes to evaluate for each of their commodity categories - L. Sears, Gerry Raasch
310	9-Nov-04	Supply Chain	O	28-Feb-05			H	Can Delphi offer any support in leveraging common suppliers
								3/1/05 - Need list from D. Lewis' buyers to evaluate. 11/9/04 - Delphi to compare prices where Delphi and Hayes use the same supplier, see if we can leverage lower prices - L. Sears
311	9-Nov-04	Supply Chain	C		6-Jan-05			Evaluate switch - make recommendations field failures due to corroded contacts
								12/1/04 - Hayes EE to contact John for further discussion. 11/23/04 - Forwarded message from John Layman. 11/22/04 - John Layman's analysis: - Very small switch with fine contacts - What is contact coating (we use Rhodium) Need to light high current brake lamp 2 if no initial
312	18-Nov-04	Off-Road	O	30-Jun-05			M	Build & Demo ABS on a utility vehicle
								4/18 - Gator to be picked up by Sonnenberg on 4/26 3/17 - Need to target HB tech ride in August. 3/3 - need to discuss push-button park brake also - Elliott to get Baumgartner involved. Deere priorities for technology is zero adj, pb park, RPC, ABS 1/6/05 - New vehicle coming in at the end of Jan (4wabe 2wabe rcc) costs on different options
313	5-Dec-04	ABS	C		23-Mar-04			Allman - recommended trip to Dow to talk about DOT 4/5 and ABS usage, properties, repackaging (label - not for use with ABS systems)
								2/5/04 - Forwarded Dow test results to Russ & Bill. 1/22/04 - Message to Gary McIntyre looking for test results. 1/12/04 - Dow Coming fluid foaming test to be run on 1/14. 12/17/03 - Got the DOT specification for fluid humidification. Will run prior to filling brake system
314	5-Dec-04	ABS	C					Altitude simulation
								5/19/04 - DOT5 activity on hold. 3/11/04 - Will begin chamber set-up week of 4/5. 2/16/04 - J. Spong working on test fixture. 1/23/04 - MTS called to calibrate chamber. 12/4/03 - Met with George Kuo about hardware requirements. 11/20/03 - Parts received for vacuum box. - Prints in the model shop
315	10-Dec-04	Bicycle	C	31-Jan-05	10-Feb-05	10-Feb-05	M	Bicycle - rear brake noise investigation
								2/10/05 - Held review with HB. Sent analysis presentation. 2/3/05 - Proposed review on Feb 10, 2:00pm CST. 1/12/05 - Conference call to review status and next steps. 12/10/04 - Bicycle delivered to Dayton.

Responsible

S. Pfeifenberger

P. Attenweiler

D. Lewis

D. Lewis

Elliott / Layman

J. Elliott

Gary McIntyre (Dow)

Elliott

M. Riehle

Hayes Brake / Delphi Action Item List										
#	Date Opened	Category	O/C	Original Due Date	Revised Due Date	Date Closed	Priority	Action Item	Update	Responsible
316	18-Dec-04	Manufacturing	C			29-Mar-04		Can Hayes visit PBR or Ambrake for a tour	3/29/04 - Message back from Tom Hack. His management denied the request for a tour. I left the offer open if anything changes. 3/25/04 - Follow-up message to Tom 3/2/04 - Spoke to Tom Hack (Ambrake Plant Manager) - he is ok with the visit, but needs to clear it with the board. 2/5/04 - Hayes to discuss if they are willing to	J. Elliott
317	18-Dec-04	ABS	C			23-Mar-04		Data comparison	3/18/04 - Data summarized and presented for FL 3/11/04 - Fulmer to summarize data for meeting on 3/18. 12/18/03 - TRC Updates - definite improvements over last year. Hi-co as good as before, low-co much better, transitions much better. Work on plotting early next year.	Fulmer/ Sonnenberg
318	18-Dec-04	ABS	C			7-Apr-04		Fluid compatibility with cars and ABS	3/26/04 - Ford Postal vehicle was processed down the same line as the Ford Ranger - no special processing. 2/23/04 - Found an internet message that indicates DOT5 was eliminated in 1999 on postal vehicles. 2/17/04 - Message to G. Bellemare at Ford to ask about DOT5.	Elliott
319	18-Dec-04	ABS	C					Hydraulic chamber test in Dayton	4/16/04 - Spoke to TIE at GM. Not sure if GM postal 5/19/04 - DOT5 activity on hold. 3/25/04 - How much of a performance degradation will occur due to valve issue. 3/18/04 - First round of DOT5 testing complete & presented to HB and H-D. Need to continue to looking at low temp anomaly 3/11/04 - Dot3 baseline complete, Dot5 to be complete by 3/15	Cukovecki
320	22-Dec-04	Motorcycle	C			26-Mar-04		Brake training class follow-up - vehicle technical specification from GM as (example) of a VTS - Investigate the possibility of brake boost for the front brake for FL using a DBC 7.4 style unit. - Please provide a PPAP worksheet and an example project - answer what "PDF" means on page 7-40 of training	3/26/04 - Information sent to Russ Dudan. 2/5/04 - BSTS is OK - Elliott to work with Joe Sharp to get an example of a Delphi spec.	Elliott
321	6-Jan-05	Manufacturing	O		3-Mar-05		L	Problem Solving Tools - Delphi Overview	4/21 - May 19 is date for Delphi visit. Elliott working to get the right person. 3/17 - Gene to provide some dates by 3/18. 2/4/05 - John is open to giving an I&CIM overview to HB. Need to coordinate a date. 2/2/05 - Message to John Waller to discuss how best to support this.	J. Elliott
322	6-Jan-05	Manufacturing	O		17-Mar-05		M	Chrome defect reduction effort	4/16/05 - Provide an overview of Delphi problem 4/21 - Delphi still recommends Shainin RedX method. Hopefully can get a Hayes person trained after the Shainin overview in May. 3/1/05 - J. Waller to present examples of different problem solving methods during visit to HB. 1/6/04 - Hayes would like a person to present an example of a red x project before implementing as a process for future use	H. Dao
323	6-Jan-05	Manufacturing	C		1-Mar-05	2-Mar-05	L	Signature Analysis	3/2/05 - Sent Geist e-mail and magazine article to HB. 1/6/05 - Share information on the Quasar system for finding m/c casting defects.	J. Elliott
324	6-Jan-05	Opportunities	C		4-Apr-05	21-Apr-05	L	Electric Brake Options	4/21 - Close - Hayes wants to pursue disc brake options only. 11/18/04 - We did electric drum brakes for the GM EV-1. Packaging space was tight in the 225mm brake, but we'd be willing to look at a small application. What size drum is most logical to evaluate?	E. Baumgartner

Hayes Brake / Delphi Action Item List										
#	Date Opened	Category	O/C	Original Due Date	Revised Due Date	Date Closed	Priority	Action Item	Update	Responsible
325	6-Jan-05	Opportunities	O					Electric Park Brake	2/3/05 - Select meeting time with Ernst Baumgartner. 1/6/05 - self adjusting park brake, p/b park brake - how can HB do a fast track on an e-park that fits their vehicles.	J. Elliott
326	21-Jan-05	Motorcycle	C		17-Mar-05	21-Mar-05	M	2006 Carpe Diem Rear - Noise prevention study	3/17 - HB to communicate with H-D that we've looked at noise from a theoretical standpoint and dont see any issues. Vehicle and dyno testing to date support the analysis. 3/14/05 - Per Mike and Shih-Wei, not sure if any complex eigenvalue work would be worthwhile. Refer to e-mail. 3/2/05 - Asked Mike for an estimate on timing	M. Riehle
327	21-Jan-05	Motorcycle	C	31-Jan-05	4-Feb-05	17-Mar-05	M	2006 Carpe Diem Rear Fade	3/17 - HD ran vehicle, HB ran dyno data - AI to share data. 2/8/05 - Sent the results of thermal analysis - any follow-up required? 1/21/05 - Received list of 4 cases to use for thermal performance evaluation. Mike Lee to complete by 2/4	K. Mike Lee
328	1-Feb-05	Manufacturing	C			3-Feb-05	H	Countdown timers	1/6/05 - HB to give list of desired iterations 2/3/05 - Forwarded info from Jeff Geist to Andre and Gunther. 2/1/05 - Share information on the countdown timers that HB saw in Dayton (Needmore Rd.)	J. Geist
329	3-Feb-05	Powersports	C	4-Mar-05		8-Mar-05	L	Determine if Delphi dynos are capable of running at snowmobile speeds for MTB.	3/2 - Delphi dyno max capability is 2500 RPM on "C" Dyno. Bill Myers recommends Link or Greening test labs to see if they can run faster. 2/3 - normal touring runs at 3000-3500 RPM, max speed (120mph) runs at 6000 RPM	J. Elliott
330	2-Mar-05	Motorcycle	O	1-Apr-05			M	Predict fuel economy impact of front brake drag on the FL	3/21 - Message to Steve Butler to find out H-D sensitivity to mileage and to see if we can predict city impact. 3/17 - What is running time on the bench test, Can Butler estimate city mileage - what is H-D's sensitivity to fuel econ? 3/3 - Use bench test data to predict fuel economy. 3/2 - Forwarded email from Russ to Mike Lee and Steve Butler.	J. Elliott
331	3-Mar-05	Supply Chain	O	11-Mar-05			H	Open discussion with Fruedenberg to leverage square seal prices.	3/3 - Moldex quality is the biggest issue. Get a contact name to work with by next week.	D. Lewis
332	3-Mar-05	Supply Chain	O	11-Mar-05			H	Provide qualified supplier list for bearings	3/3 - Needed for John Thomas' product development.	D. Lewis
333	3-Mar-05	Technical	O	4-Apr-05			M	Assess product audit testing to reduce the amount of testing being performed	3/3 - Need a Delphi reliability engineer to help out. HB tests a part for x years with no failures, how long should they continue? Does audit need to be on the process control plan.	J. Hegwood
334	3-Mar-05	Off-Road	O	17-Mar-05			M	Set up discussion about integrating park-brake features on the Deere Gator	4/21 - Need brake system information on the Deere. Ernst to develop proposal for Aug tech ride. 3/3 - Need to find out what is available for demo, what's realistic for production? (Ryan & John Thomas for discussion on HB side)	E. Baumgartner
335	3-Mar-05	Off-Road	C	24-Mar-05	21-Apr-05		M	Ship Gator to Delphi	4/21 - To be shipped on 4/26 3/17 - Call Ryan to find out if it's available to ship. 3/3 - Elliott to find out if there are any shipments to/from Milwaukee coming up	J. Elliott

[illegible]